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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,407	03/19/2002	Stefan Grutke	S0728	2960
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KEIL & WEINKAUF 1350 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036				
EXAMINER WYROZEBSKI LEE, KATARZYNA I				
ART UNIT 1714				
PAPER NUMBER				

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,407

Applicant(s)

GRUTKE ET AL.

Examiner

Katarzyna Wyrozewski Lee

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0802
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 discloses that the clay silicate is at least to some degree cationically exchanged with organo-cation. With respect to the above, it is not clear as to what degree the clay is actually exfoliated to.

Claims 5 and 6 invoke improper Markush language. According to MPEP 2173.05(h) the Markush language may recite for example: "...wherein R is selected from the group consisting of A, B, C and D" or "...wherein R is A, B, C or D".

In addition, claims 5 and 6 utilize term "derivative" which is considered indefinite.

Claim Objections

3. Claims 5 and 6 are objected to because of the following informalities: The language in which these two claims are written is very confusing. Appropriate correction is required.

For example, simple statement that copolyester contains dicarboxylic acids, their esters and mixtures thereof ... is much simpler and clearer than how claims 5 and 6 are presented at this time.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 7, 8, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by TOPOLKARAEV (US 6,492,452).

The prior art of TOPOLKARAEV discloses composition comprising organically modified clay and degradable polymer.

The selection of the degradable polymer of TOPOLKARAEV is based on consideration of variables such as solubility in water, molecular weight, melt processing and the like (col. 5, lines 38-41). The polymers of the prior art of TOPOLARAEV include polyesters and copolyesters (col. 6, line 64; col. 7, lines 12-14).

The clay component of the prior art of TOPOLKARAEV includes smectite-layered silicates such as montmorillonite and which clays are organically modified (col. 9, lines 19-23, 40-45). The cation exchange of montmorillonite clay, which is its property, is approximately 95 meq/100g. The amount of clay in the composition of TOPOLKARAEV is in a range of 5-60 wt % (col. 10, lines 55-60).

The component that is used to modify clay of TOPOLKARAEV is quaternary alkyl ammonium salt (col. 10, lines 8-24).

In the process of making composition of TOPOLKAREV, the polymer is melted in order to obtain homogeneous mixture. The unmodified phyllosilicate of TOPOLKARAEV are disclosed to have basal spacing of 12.51 angstroms and is measured using X-ray (col. 12, lines 52-54). Intercalation with organic ammonium and then with polymer increases basal spacing of the clay platelets eventually exfoliates, which is further shown by lack of d-peak in XRD spectra. (col. 10, line 67 – col. 10, line 5).

The composition of the prior art of TOPOLKARAEV is utilized in making disposable articles, temporary coatings and barriers, films and fibers (ABSTRACT).

Additional components in the prior art of TOPOLKARAEV include calcium carbonate, titanium dioxide, talc, kaolin clay and the like (col. 9, lines 49-55), water repellent additives in amount of 1.5 wt % (col. 17, line 36-38). The specification further teaches use of water repellent additives in amount of 0.5-10 wt % (col. 8, lines 10-15). Calcium carbonate and talc can be utilized as nucleating agents in amounts of 0.05-50 wt % (col. 2, lines 26-30). Calcium carbonate in examples is SUPERMITE (col. 10, lines 39-41).

In the light of the above disclosure, the prior art of TOPOLKARAEV anticipated requirements of claims rejected above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOPOLKARAEV (US 6,492,452) in view of HYNKOOK (WO 92/13019).

The discussion of the disclosure of the prior art of TOPOLKARAEV from paragraph 5 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of TOPOLKARAEV is recitation of the components of biodegradable polyesters.

With respect to the above difference, the prior art of HYNKOOK discloses biodegradable copolyesters that can also be utilized in making disposable articles, films, fibers or barriers.

The copolyester in examples of the prior art of HYNKOOK comprises at least three components, that include ethylene glycol, diethylene glycol, dimethyl terephthalate and sodium dimethyl s-sulfoisophthalate (Example 4). Most of the examples are similar to this one.

Claims of the prior art of HYNKOOK teaches that at least 85 % of the R groups in the carboxylic acid component is aromatic and 0.1-2.5 contains the sulfo groups (claim 1). The glycol or hydroxy component of copolyester is 2-40 wt %.

The specification further teaches that replacement of terephthalic acid with up to 5 % of aliphatic acid such as azelaic acid, succinic acid, adipic acid and the like (page 6, lines 28-33) can be implemented if one of ordinary skill in the art desires to reduce the Tg value of the

copolyester. In addition inclusion of branching component such as triethylene glycol can further lower Tg to even less than 65°C (page 7, line 1).

Modifying the type of the monomers in making of degradable copolyesters can be altered depending on what Tg value is required for the intended use.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the copolyester of HYNKOOK in the composition of TOPOLKARAEV and thereby obtain the claimed invention. Using copolyester of HYNKOOK would still result in degradable composition utilized for the same purpose as that in the composition of TOPOLKARAEV.

10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOPOLKARAEV (US 6,492,452) in view of WARZELHAN (US 6,018,004).

The discussion of the disclosure of the prior art of TOPOLKARAEV from paragraph 5 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of TOPOLKARAEV is recitation of the components of biodegradable polyesters.

With respect to the above difference, the prior art of WARZELHAN discloses degradable polyesters used for producing of molding composition. The copolyester of WARZELHAN comprises following:

Diacid component comprising 35-95 mol% of adipic acid, 5-65 mol % of terephthalic acid, 0-5 mol % of sulfonate compound, and hydroxy component comprising alkane diols (Abstract).

Biodegradable polymers of WARZELHAN are melt processible polymers that can be utilized for form the articles of TOPOLKARAEV

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the copolyester of WARZELHAN in the composition of TOPOLKARAEV and thereby obtain the claimed invention, because copolyesters of WARZELHAN are melt processible.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over TOPOLKARAEV (US 6,492,452) in view of BRAGODIA (US 6,395,386).

The discussion of the disclosure of the prior art of TOPOLKARAEV from paragraph 5 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of TOPOLKARAEV is polymerizing components of the polyester *in situ* with clay.

With respect to the above difference, the prior art of BRAGODIA discloses composition comprising polyester and clay, wherein many monomers utilized in formation of the polyester of BRAGODIA are also listed in TOPOLKARAEV.

The prior art of BRAGODIA teaches that clay can be utilized during the polymerization process of clay. During the polymerization process it is more than obvious to add one monomer to the other and then initiate polycondensation.

Utilizing clay *in situ* with polyester monomers does not adversely affect course of the reaction.

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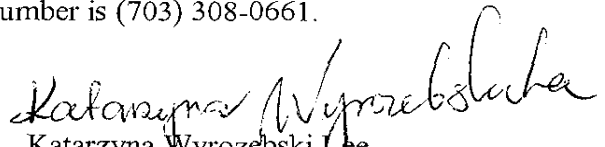
In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to use clay *in situ* with polyester monomers and thereby obtain claimed invention. Such process would not adversely affect the polymerization of the polyester and in fact TOPOLKARAEV discloses polymerization step in the specification by addition of grafting monomer.

Beginning December 12, 2003 the new phone number for the examiner of record will be 571-272-1127.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Katarzyna Wyrozebski Lee
Primary Examiner
Art Unit 1714

November 20, 2003